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I might have added a great number of informations, from travellers, concerning various tribes of Indians; their customs, their languages, &c. such as that there are Indians who speak the Welsh language; that there are others who live in works similar to the ancient remains, already described; that there are Indians who live a shepherd-life, and others who entirely cultivate the soil. But I have not such full assurance of the truth of these things as to authorise me in reporting them.

I have, thus, according to the best of my abilities, given every information in my power, on the various inquiries in your favor. I have little expectation of there being any thing new in them, or which will give light on the subjects: but such as they are, please to accept them as my earnest endeavours to serve you.

With every sentiment of respect,

I am, Sir,

Your most Obedient and

Humble Servant,

JONATHAN HEART.

Nº. XXVI.

*An Account of some of the principal Dies employed by the North-American Indians. Extracted from a paper, by the late Mr. Hugh Martin.*

Read Oct.  
4th, 1782. **T**HE Indians die their *red* with a slender root, which is called in the language of the Shawanoes *Hau ta the caught*. Upon my showing a specimen

men of this root to the driers in Philadelphia, they informed me that it was madder, and that by transplanting and cultivating it, for a few years, it would become exactly similar to the imported madder of the shops. In its natural state, it grows in low swampy grounds, and spreads along the ground, near the surface. The roots are of various lengths, some of them being not more than an inch or two, whilst others are two feet, long : their thickness seldom exceeds that of a straw

These roots, when fresh for the most part, put on an orange appearance, though some of them are yellow ; but after they are dried which they must be, before they can be used with success, the outside appears of a dark brown : when broken, however, the inside appears red. From every root arises one limber stalk, which is commonly from six to eighteen inches high : at the distance of about half an inch there are four small leaves, and on the top is the seed-vessel, which comes to maturity in September, and is of a conic form. In some swampy situations, I have found, this vegetable growing so plentifully, that several hand-fulls of it might have been gathered within the compass of a yard or two.

The Indians pound the roots of the *Hau ta the caught* in a mortar, with the addition of the acid juice obtained from the crab-apple. They, then, throw the whole into a kettle of water along with the substance to be died, and place the vessel over a gentle fire, until the colour is properly fixed.

It is by this process that the Indians die the white hair of deer-tails and the porcupine-quills, with which they ornament themselves, of a red colour. I have also seen a specimen of wool which one of them had died of a beautiful red in the same manner. I made experiments with this red and the vegetable-acid, and succeeded. I also employed

ployed the vitriolic-acid in alum, &c. which made it of a darker colour.

The *orange colour* employed by the Indians, is obtained from the root of the *Poccon*, the outside being pared off, and also from the plant called *Touch-me-not*. The vegetable-acid, before mentioned, is likewise used as a fixer to the colour of these two plants. I found that by mixing the red colour of the *Hau ta the caught* with the yellow colour of the plant of which I am next to speak, I made an orange.

The Indians die their *bright yellow* with the root of a plant which grows spontaneously in the western woods, and which might, very properly, be called *radix flava Americana*. This root is generally from one to three inches long, and about one half of an inch in diameter, and sends out a great number of small filaments in every direction except upwards: these filaments are as yellow as the body of the root itself. From the root there grows up a stalk about a foot from the ground, and at the top is one broad leaf. A red berry, in shape and size resembling a raspberry, but of a deeper red, grows on the top of the leaf: this berry is ripe in July.

I made some experiments with this root and the vegetable-acid, on silk, linnen, and woollen, and succeeded. I tried it again with the vitriolic-acid and, likewise succeeded. I also tried it with the vegetable-alkali, and without any of these substances, and was successful in obtaining a good yellow in its simple state. I presented a specimen of this root to the driers, who found it to be a valuable article in making a yellow, and with the addition of Indigo in making a green.

Their *green* is made by boiling various blue substances in the liquor of *Smooth-Hickery bark*, which dies a yellow. In this manner, I have seen blue cloth, and yarn changed

ed to a green; but the goodness of the green depended on that of the blue. There are other substances which die a yellow colour, and with which the Indigo will form a green; but as they are found to be inferior to the *radix flava*, or Yellow-Root, in making a yellow, and with the Indigo a green, nothing need be said of them.

In making their green the Indians discover great œconomy. They carefully unravel small pieces of green cloth, and pieces of old green garments. These they throw into a kettle with a sufficient quantity of water, and the cloth to be died. The whole is then set over a gentle fire, until the colour is made. They informed me that by this process they die their Porcupine-quills green.

The *blues* are so well known to be made by the *Indigo* of our own continent that nothing need be said concerning them here. Under this head, however, I beg leave to observe, that the *Woad* is the natural produce of our western soil, and that without it no deep or lasting blue can be made.

The Indians die their *black* with the *Sumach* of this country. They, likewise, make a beautiful black with the bark of the *White-Walnut*, and the vegetable-acid; for they have no knowledge of the mineral acids. With this bark I have seen them die their woolen cloths, and the intestines of various species of animals, as bears, &c.